



IS 351.01W, 80128, Science Inquiry I

COURSE SYLLABUS: Fall 2020

Class will be facilitated online

INSTRUCTOR INFORMATION

Instructor: Dr. Cheri Davis

Office Location: McFarland Science (STC) 148A

Office Hours: online Tuesday and Thursday 10-11 am, or face-to-face by appointment

Office Phone: 903 468 8650

Office Fax: 903 468 8651

University Email Address: Cheri.Davis@tamuc.edu

Preferred Form of Communication: **email as indicated above**

Communication Response Time: 24 hours, week days only

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

Textbook(s) **Required: IS 351B Lab manual** available digitally through the link provided,

IS 351B (ISBN: 978-1-61740-642-3)

<https://store2.van-griner.com/product/redemption-code-for-advanced-integrated-science-i-351b-ebook/>

Software Required: regular MS office (or equal)

Optional Texts and/or Materials: notebook, calculator, computer, printer or printer access, and note taking materials in addition to the required lab manual.

Course Description

Science topics and themes are chosen to emphasize broad concepts highlighted in the Texas (TEKS) and National Science Standards (NGSS). Topics will include conservation laws, systems in nature, the nature of scientific inquiry and presentation of scientific information. The course will be taught by an inquiry-based method, modeling instructional techniques proved effective by current educational research. This course is designed for interdisciplinary education majors.

Science is an interesting and diverse topic; learning and teaching can be enjoyable as well as educational. Science is what allows mankind to function in a productive manner. We will explore the question, "What is Science?" and help each individual grasp an understanding of his/her own teaching philosophy.

The syllabus/schedule are subject to change.

Students will participate through virtual experiments, in a cooperative learning environment, and lecture. Pedagogy, methods and techniques, critical thinking, data analysis, proper handling of equipment, and content will be explored in this course.

Topics covered:

Module Interactions: Forces & Energy

Module Interactions deal with energy in the context of different types of interactions, kinetic and potential energy, conservation of energy, and fields. Students explore energy concepts in various interactions, including contact interactions (pushes, pulls, and friction), heat interactions, and electric circuits. Giver/receiver energy diagrams are used to describe the transfer or transformation of energy. Conservation of energy is introduced early in the case of two objects interacting, and then expanded to account for more complex chains of interactions between multiple objects; including the surroundings.

Potential energy will be explored in the context of elastic objects, which then builds to introduce potential energy associated with non-contact forces: magnetism, static electricity, electromagnetism, and gravity. The concept of fields is used as a model for action at a distance and the associated potential energies.

The focus on interactions and forces treats interactions, force, and motion for single forces; then with combinations of forces. The unit begins by introducing forces and their relationship with interactions and energy. The connection between force and motion is explored for short-duration forces, continuous forces, and backward forces; later the effects of mass and force strength are included. These are synthesized into Newton's second law. The unit ends with a treatment of the vertical motion of falling objects (ignoring air resistance).

Students will examine combination of forces, including balanced and unbalanced forces, arriving at the idea of net force. The unit includes a treatment of the horizontal motion of objects experiencing frictional forces, and the vertical motion of falling objects with air resistance. The unit culminates with Newton's third law.

Astronomy

The astronomy unit will focus on the planets and characteristics of the planets in our solar system. The material covered in this unit will originate from content delivered in class and will not require additional printed text or material.

Student Learning Outcomes

1. Students will gain a better pedagogical understanding.
 - Students will identify and practice different teaching methods.
 - Students will identify different learning styles.
 - Students will be able to determine how teaching and learning styles compliment or support material in various situations.
 - Students will better understand the NGSS/TEKs alignment and how that process applies to content delivery.

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2. Students will be better prepared to achieve success completing the TExES exam.
 - Students will understand the basic methodology of science through experimentation.
 - Students will prove content mastery by taking and passing a minimum of 2 of the 3 exams.
 - Students will understand the meaning, application, and concepts of force and motion: types of forces, Newton's laws of motion, conservation of energy, and historical contributors such as Aristotle, Galileo, and Newton.
3. Students will assist the instructor through cooperative learning to provide interesting and practical science knowledge and skills for taking instruction into the classroom and everyday life.
 - Students will learn and practice student centered instruction.
 - Students will develop a plan for laboratory safety and classroom management.
 - Students will be expected to fully participate in all online discussions.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

D2L will be used for content delivery, grades, and as a venue/repository of review material and PowerPoints. All work will be turned in through the course portal in D2L. Emailing the assignment is not approved. The D2L course shell submission process allows the materials to be available for grading and accessible to both the professor and the teaching assistant. This also allows communication as a means of feedback on each assignment. Students should have basic understanding and ability to manage fundamental computer skills such as MS Word, Excel, & PowerPoint (or similar)

Instructional Methods

This class will be fully facilitated online. The instructional methods for this course will vary with the topic being explored. Students will be responsible for the coursework as it is assigned including discussions. Questions are welcomed and encouraged.

Students will be working in groups for various assignments, these might be in the format of a virtual discussion. It is imperative that students do NOT get behind as their group will not have each member's contribution. Any missed material will not be made up. For clarification purposes, there are NO make-up labs/assignments. This includes any lab section of a test.

Due to online instruction, extra credit will not be an option so stay current with the assignments and practice time management.

Student Responsibilities or Tips for Success in the Course

This class normally requires regular attendance as much of the content is delivered in a hands-on format that will build from one lesson to the next. If you miss a class you may miss the skills needed for the next and future lessons. The same fundamental understanding applies to online learning.

It is important that you participate, plan your schedule to devote time specifically and regularly for your coursework. Missing even one class can cause a significant gap in your learning and understanding. The best thing you can do to be successful in this class is to not miss class.

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Each time you log into the course shell, your participation, amount of time, and course navigation is recorded. You will receive a participation (attendance) grade accordingly.

GRADING

The following scale will be used for determining final course grades:

Daily assignments/labs	55 %
Tests (10% each midterm, 15% final)	35 %
Attendance	10 %

90% < A < 100%	<u>Tentative Exam Dates</u>
80% < B < 89%	1) Oct 3
70% < C < 79%	2) Nov 14
60% < D < 69%	3) Finals Week
F < 60%	

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Plagiarism or cheating will not be tolerated for any reason and violation will provide the individual(s) involved with a failing grade and a referral to the dean's office for further disciplinary action.

Assessments

Daily labs-There will be no make-up labs. If you do not complete an assignment by the time due, you will receive a grade of zero; there is no way to make up work missed.

Lectures-There will be a few lectures and some mini-lectures. Since the course is online, you should be able to go back and review the material as needed as long as that unit is still open. You will be responsible for all material at the time of the test.

The units will generally open on Monday allowing time during the week and weekend to study. The unit will then close (generally the following Monday) when the next one opens. For clarification, 2 units will not be open at the same time. Once a unit closes, it will not be reopened.

Exams-If you know you are going to miss an exam, please **notify me in writing** (email) approximately 2 weeks in advance to make arrangements to take it early. If you miss an exam it must be scheduled and completed before the graded exams are returned to the class, generally the format for online exams are grades at the time of completion.

TECHNOLOGY REQUIREMENTS

LMS

The electronic gradebook iOct 10n D2L will be used in this course.

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All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement

Please take advantage of office hours; they are scheduled for you. Otherwise please email any questions you may have.

Students are welcome to visit virtually during office hours or at any other time I am in my office and available. If meeting face-to-face a face covering/mask will be required for the duration of the meeting. For a specific time outside of the scheduled office hours please feel welcome to call my office or email to schedule an appointment.

All written communication should be through email at this address: Cheri.Davis@tamuc.edu

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Students will be expected to regularly check their email provided by the University through D2L as this address is provided to the instructor. In **ALL email**, students are required to include the following information in the subject line: **the course name, last then first name, and a (very) brief statement/inquiry.**

e.g. Subject: IS 351, your name, lesson #3 question

This will allow all inquiries to be answered as soon as possible. If a response is not received within 2-weekdays then assume there was a problem with the email and please follow-up through other contact options. I have had recent IT issues, if you do not hear back, give me a call.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Course Specific Policies

Violation of any class policies will be reflected on the student's final grade for the course.

1. Be professional. You are completing your degree and preparing for the classroom as the facilitator of instruction. Your attitude should reflect your professionalism, which should include the remaining class policies.

2. Be here. Absences will result in lowering your overall grade. Attendance is 10% of your final grade for the class. If you know in advance that you are going to miss a class, please inform me in writing via email. If you know in advance that you are going to miss an exam, make arrangements with me to take the test early.

3. Be on time. It is important that you plan to study for this and all of your classes. Make a schedule, allow specific time to study and complete assignments. Tardiness is a bad habit, very impolite, and unprofessional; complete your work on time.

As a teacher, you will be expected to turn in grades on time as well as meeting other deadlines; again be professional. Absences are not considered a "good reason" for turning in late assignments. All due dates are given in advance; take them seriously as **late work is not accepted.**

Course Specific Procedures

1. Students are required to take all exams and must prove mastery of the material by completing at least two tests with a grade of 70 or better to pass this course. It may be possible for students to complete all coursework with a high enough average to pass the overall class without completing any of the tests with a grade above 70. If fewer than 2 exams are not completed with a score above 70, the student will receive a failing grade for the course. Combined exams total 35% of the final grade.

2. Students will be responsible for their learning and participate in all class activities with a positive attitude. Professionalism will be practiced.

3. Students will have all homework completed on time. Late work is not accepted so do not

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procrastinate attending your responsibilities.

4. Students will be preparing material through the semester for regular assignments and will require a computer and internet access. Students will be responsible for submitting all work through the D2L portal. Emailing material to the professor or TA is not acceptable, work needs to be submitted as instructed. This allows access for grading and feedback by me and the TA for the course. **All work should include citations.**

5. Students will participate and contribute equally in-group activities. Failure to comply will be reflected in the non-compliant student's grade and will not be a detriment to the remaining group members. All collaborative assignments will have an individual grade for each student dependent upon their contribution, collaboration, content, and professionalism.

6. Students are welcome to visit virtually during office hours, or make an appointment if the posted hours do not fit the need.

7. If you are struggling, seek assistance early. I am here to help you learn. The TA for this class can also be available as needed.

8. Your grade is your responsibility, this is not a difficult class. Students have the option to earn an A for this class; many have in past semesters. Extra credit is not usually offered. Although I have the right to drop a student for excessive absences, I won't do so. Students also have the right to earn an F if they decide to not complete the work. I generally do not offer or approve drops/incompletes for poor effort. Remember you are training to teach which will affect the next generation of students; practice good habits.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](#).

<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: <https://www.britannica.com/topic/netiquette>

University's Pandemic Response

"A&M-Commerce requires the use of face-coverings in all instructional and research classrooms/laboratories. Exceptions may be made by faculty where warranted. Faculty have

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management over their classrooms. Students not using face-coverings can be required to leave class. Repetitive refusal to comply can be reported to the Office of Students' Rights and Responsibilities as a violation of the student Code of Conduct. "

"Students should not attend class when ill or after exposure to anyone with a communicable illness. Communicate such instances directly with your instructor. Faculty will work to support the student getting access to missed content or completing missed assignments."

If we meet in person for any reason, face coverings will be required for the duration.

TAMUC Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Gee Library- Room 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: studentdisabilityservices@tamuc.edu

Website: [Office of Student Disability Resources and Services](#)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

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Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

COURSE OUTLINE / CALENDAR

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Domain IV-Science

Competency 1	Safe & Proper Laboratory Processes
Competency 2	History & Nature of Science
Competency 3	Impact of Science
Competency 4	Concepts & Processes
Competency 5	Students as Learners & Science Instruction
Competency 6	Science Assessment
Competency 7	Forces & Motion
Competency 8	Physical & Chemical Properties
Competency 9	Energy & Interactions
Competency 10	Energy Transformation & Conservation
Competency 15	Structure & Function of Earth Systems
Competency 16	Cycles in Earth Systems
Competency 17	Energy in Weather & Climate
Competency 18	Solar System & the Universe

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In science, many of the concepts work in conjunction with others. The weekly outline is general and not specific. (list for a long semester)

Week	Topic
1	Syllabus, pedagogy, course requirements
2-3	Scientific theory & processes, teaching/learning methods
4-8	Kinematics, force, motion, energy Test 1
9-11	Newton's laws, free-body diagrams, waves, light, heat Test 2
12-15	Solar system
16	Final Exam (online)

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